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GEOGRAPHICAL NOTES.

BY

GEO. C. HURLBUT, *Librarian.*

NINTH INTERNATIONAL CONGRESS OF AMERICANISTS: CHANGE OF DATE.—The Committee of Organization of this Congress announces that, in order to enable visitors from other Countries to use the time of their sojourn in Spain to the best advantage, it has been decided that the Sessions of the Congress of Orientalists shall be held at the Alcázar of Seville during the period of the 1-6 of October; and that the Congress of Americanists, to which the week named had originally been assigned, shall meet at the Convent of La Rábida on the 7-11 of October. The inauguration of the monument commemorating the discovery of America will take place at La Rábida, October 12, 1892.

The *Compañía Transatlántica* makes a reduction of 50 per cent. in the price of tickets to members of the Ninth International Congress of Americanists. These tickets will be good for eight months (from March or April to October or November). A similar reduction is offered by all the Spanish railway companies on tickets good for the month, September 25--October 25.

Any one may become a Member of the Congress on payment of 12 francs to the Secretario General D. Justo Zaragoza, 11 Calle de San Mateo, Madrid; or at the Consulate of Spain, in any city.

THE EXHIBITION AT GENOA.—The Italo-American Exhibition for the Centenary of the Discovery of the New World will be opened in Genoa on the 1st of June and closed on the 30th of November, 1892.

Besides the display of industrial products of all countries, there will be public festivals and entertainments, the inauguration of the monuments to Garibaldi and to the Duke of Galliera, Congresses of Geography, of History and of Maritime Law, a grand Historical Festival, a Tournament of the Columbian period, an Exhibition of Ancient Works of Art, an Exhibition illustrating the history of the Catholic Missions in America, Illuminations, Gymnastic Contests and popular celebrations. Mr. J. P. Riva, the Italian Consul-General, will furnish information concerning details.

FAUSTO RUGHESI.—Prof. M. Fiorini, in the *Bollettino della Società Geografica Italiana* for November, 1891, describes a map of the world by Fausto Rughesi, a cartographer of the XVI century, of whom no previous writer on geography has made mention.

This map and four others by Rughesi belong to the Barberini Library in Rome. They were drawn in that city and printed there in 1597; and they are dedicated to Vincenzo Gonzaga, Duke of Mantua and Monferrato.

The map of the world, the only one which Prof. Fiorini had time to examine during his visit to Rome, measures 525x700 millimetres (20 7-8 x 27 5-8 in.). It is in two parts, enclosed by circles, with a diameter of 335 millimetres (13 3-16 in.). The two hemispheres (the one embracing the Old World, the other the New) have their common base in the great circle that passes through the westernmost of the Canary Islands (from which the longitude is reckoned), and the point marked by the meridian of 90° west longitude and 78° north latitude.

The north pole is in the circle enclosing the Old World, the south pole in the other.

The projection employed is the horizontal orthographic, which is a true perspective. The meridians and the parallels are shown by curved lines forming ellipses, as the system requires.

The shading of the two hemispheres is masterly, and brings out the convexity and rotundity of the sphere.

Rughesi appears to have taken from the celestial planispheres, constructed after the rules of orthographical projection, the idea of applying that method to terrestrial maps. Intimately acquainted, as he was, with the theory and practice of perspective, he drew his map, not with reference to the equator, or the meridian, according to the practice and the precept of his time, but from the horizon, or a given great circle, the common base of the two hemispheres

The optical illusion, which is slight in polar and meridian orthographical projections, is very great in the horizontal, and strong relief is given to the rotundity of the sphere by the curves and intersections of the elliptical meridians and parallels; and in Rughesi's map the shading heightens this relief.

The subject of the orthographic projection has been treated by D'Aguillon (1613), Fournier (1679), and Varenius,* but no one of these mentions the horizontal orthographic projection ; and Nordenskiöld, unacquainted with the work of Rughesi, declares in the *Fac-simile Atlas* (p. 93) that no map on this projection was published before the XVII century.

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*Prof. Fiorini refers to the Naples edition of 1725. The first Amsterdam edition bears the date of 1650.

In view of these facts, Prof. Fiorini concludes that Rughesi was the first cartographer to employ the perspective method, illustrated by the Barberini map.

The cartographer's name is mentioned by a few writers, and Prof. Fiorini prints, in an appendix to his paper, eleven letters from the Gonzaga Archives at Mantua; but the sum of the information he has brought together is that Rughesi was a native of Montepulciano, that he was of good family, and that he was well known as an accomplished historian and geographer.

MAPS BY MERCATOR.—The Geographical Society of Berlin has brought out, through Mr. W. H. Kühl, publisher, a portfolio containing fac-simile reprints of three maps by Gerhard Mercator, lately recovered in the process of classifying the collections of the Breslau town library. These maps are : *Europe* (1554), in 15 sheets ; *The British Isles* (1564), in 8 sheets ; *Chart of the World* (1569), in 18 sheets.

The *Chart of the World* was already known by Jomard's reproduction of the copy, belonging to the National Library of Paris, but the *Europe* and the *British Isles* were supposed to have perished. Their recovery is an event, and the Berlin Society has deserved well of the scientific world by making these cartographical monuments accessible to all in the superb sheets issued from the Imperial Printing Office.

THE WATERS OF SOUTHERN NEW ENGLAND.—The U. S. Fish Commission has just brought out the Report, by Prof. William Libbey, Jr., upon the *Physical Investigation of the Waters of the Southern Coast of New England, made during the Summer of 1889 by the U. S. Fish Commission Schooner Grampus.* Prof. Libbey explains, as follows, the purpose and plan of the investigation:

"The object of the expedition was to study the temperature relations between the cold wall of the Labrador current and the warm waters of the Gulf Stream, with the idea of establishing some connection between the changes in temperature in the waters and the migrations of the fish which inhabit them. . . .

"It is believed that in the seasonal variations of the hydro-isothermal lines will be found the key to explain the migrations and the geographical distribution of our important food species as well as of the food upon which they subsist, as both depend upon the temperature variations which determine the changes that occur in their location. It may also happen that while the changes in position of these areas of equal temperature will differ in succeeding seasons, they will, however, stand in some essential relation with the general meteorological conditions upon the land which are under constant observation and discussion. The data eventually obtained will undoubtedly lead to important generalizations bearing upon the questions of physical geography and biological physics, or the relation of marine species to their physical environment.

"Our plan of operations was to start at a point south of Nantucket Island, and then running due south, to make a series of soundings, accompanied by a set of observations upon the temperature and specific gravity of the water at various depths. The observations were made by means of instruments attached to a steel-wire cable which was controlled upon the deck of the vessel. These serial-temperature and specific-gravity observations were made as nearly as possible 10 minutes of latitude apart. To the westward of this first line, a series of such lines were run out from the shore well into the Gulf Stream, at intervals of 10 minutes of longitude. There were nine of these lines, four of which were afterwards duplicated, and upon each of these lines at right angles to the coast there were usually twelve or thirteen stations. . . .

"The instruments were placed upon the 5, 10, 15, 20, 25, 30, 40, 50, 75, 100, 150, 200, 250, 300, 400 and 500 fathom points, and thus, with the surface observation, seventeen observations in all were made at all the deep-sea stations; of course in shallower water fewer observations were made, but the intervals between the instruments remained the same.

"It will be seen that the instruments were placed closer together near the surface where the changes of temperature were most rapid. By this means we sought to obtain a cross-section, so to speak, of the water on each of the lines, which were from 120 to 130 miles long."

The Report gives the meteorological records, the deep-sea temperatures and the observations on the specific gravity of the water. More than 1,600 observations of temperature were made, and 360 meteorological observations were taken daily. A map shows the 136 stations occupied, 46 of these in water over 100 fathoms deep.

The accompanying temperature charts show in every instance a remarkable downward curvature of the 50° bathy-isothermal line, off the continental platform. Prof. Libbey says:

"The peculiar shape of this curve would seem to point to a mechanical intrusion of cold water from the surface of the continental platform, which may be reinforced by the specific gravity of the water, as would appear from a study of some of the observations made, notably the specific gravities at the 100-fathom line in charts 2 and 3.

"The existence of this body of warm water off the continental edge may offer an explanation of the richness of this particular spot in all forms of marine life, as shown by the successful dredging of the *Albatross* upon it."

While the importance of further investigation in the same direction is clearly indicated by the results attained, no extended generalization is attempted.

ALTITUDES IN THE UNITED STATES.—The second edition of Mr. Henry Gannett's *Dictionary of Altitudes in the United States* forms Bulletin No. 76, (1891) of the U. S. Geological Survey. In the first edition (Bulletin No. 5, 1884), the elevations are tabulated by States and Territories, alphabetically arranged, while in the second there is a single alphabetic arrangement throughout the work. Each method has its special advantages, and the one may be said to complete the other, though the later work contains many additional determinations of altitudes by railroads.

The errors which had escaped notice in Bulletin No. 5 seem to have been corrected in No. 76,* and the author may look upon the result of his labors with some satisfaction.

The observations are numerous enough to give an idea of the relief in each State and Territory.

In Maine, the highest point is Mt. Katahdin, 5,200 ft. Next comes Mt. Abraham, 3,388 ft., and then Barker's Mountain, 2,551 ft. The other measurements (about 150 in number) range from 2,021 down to 4 ft., the height of the R. R. wharf at Portland. Mt. Desert is at an elevation of 1,527 ft.

In New Hampshire, Mt. Washington rises to 6,288 ft.; and of about 250 other stations 45 exceed 4,000 ft. in height, and twice as many range between 4,000 and 1,000 ft.

There are 5 points in Vermont over 4,000 ft. in height, 10 between 3,000 and 4,000 ft., 6 between 2,000 and 3,000 ft., and 18 between 1,000 and 2,000 ft. The lowest measurement is Lake Champlain, 101 ft. above the sea, and the highest Mt. Mansfield, 4,430 ft.

Of nearly 300 stations in Massachusetts the highest is Greylock, 3,535 ft. Then follow Bald Peak, 2,624 ft., Mt. Hoosac, 2,510 ft., East Mountain 2,276 ft., and Wachusett, 2,018 ft.

The greatest elevation in Connecticut is at Norfolk,

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* One exception, at least, should be noted. On p. 23 two names are entered within five lines, as follows:

Agua Flegra, N. Mex. Wheeler, 8,194.

Agua Negra, N. Mex. Wheeler, 8,194.

Agua Negra is in Wheeler's list, but Agua Flegra, the invention of the copyist or the printer, is not to be found.

1,220 ft.; and Pascoag, 396 ft., is the highest point in Rhode Island.

The altitudes in New York, some 1,200 in number, are about equally divided between those of less than 1,000 ft. and those ranging from 1,000 to a little over 5,000 ft. Mt. Marcy, the highest of the Adirondacks, measures 5,403 ft. Three other peaks exceed 5,000 ft., but not many others attain 4,000 ft. Niagara Falls Station is 574 ft. above the sea.

Pennsylvania, in which not far from 2,000 measurements are registered, shows not one higher than 2,495 ft.; and in New Jersey the greatest elevation is at High Knob, 1,799 ft.

In Delaware the extremes are, 282 ft. at Dupont's, and 7 ft. at Wilmington.

The highest stations of the 200 in Maryland are Altamont, 2,620 ft., and Oakland, 2,371 ft., both on the Baltimore and Ohio Rail Road.

White Top, 5,530 ft., Elliot Knob, 4,473 ft., and the Peaks of Otter, 3,993 ft., are the greatest altitudes, out of about 450 recorded for Virginia. The elevation of the Natural Bridge is 736 ft.

In the District of Columbia the dome of the Capitol is 379 ft., and the Soldier's Home 410 ft., above sea-evel.

West Virginia has 3 stations of about 3,100 ft., 6 of a little over 2,000 ft., and 38 between 1,000 and 2,000 ft., out of 120 measured.

The highest mountains east of the Mississippi are in Western North Carolina and Eastern Tennessee. There are in all 46 peaks that exceed 6,000 ft. in height, and 21 of these are loftier than Mt. Washington. The highest point is Mitchell High Peak (6,688 ft.) in North Carolina. Asheville, surrounded by high mountains, is at an elevation of 1,994 ft.

The mountains of South Carolina and Georgia are lower: 5 in South Carolina are between 3,000 and 4,000 ft.; 2 in Georgia slightly exceed 5,000 ft., and 8 are between 4,000 and 5,000 ft. In all these States, from Virginia to Georgia, the measurements outside of the mountain region show a nearly uniform elevation of 700 or 800 ft. In Florida the level sinks, the highest station being Highland, 210 ft., and the lowest Fernandina, 7 ft. Alabama has an average elevation of 420 ft., Mississippi one of 256 ft., and Louisiana one of 29 ft., the lowest in the country. New Orleans is 4 ft., and Le Boeuf 2 ft. above the sea-level.

In the Mississippi Valley north of the Gulf States, the highest point is Harney Peak, in South Dakota, 7,368 ft. The average elevation is highest in North and South Dakota, 1,930 ft., and lowest in Arkansas, 440 ft.

In Texas the highest point is Fort Davis, 4,918 ft., while Galveston stands only 3 ft. above the sea-level; and the average elevation of the State, with its 275,000 square miles, is about 850 ft.

The altitudes in the Rocky Mountain region and westward to the Pacific are much greater than those in the Eastern and Central States. Montana has 12 peaks that rise to more than 10,000 ft., and the average of the other measurements is 4,407 ft. In Wyoming there are 57 mountains more than 10,000 ft. high, the highest being the Grand Teton, 13,691 ft. Exclusive of the higher mountains, the average elevation is 7,280 ft.

The highest point in the Yellowstone National Park is Turret Mountain, 11,142 ft.

Out of 850 stations measured in Colorado 340 are of mountains more than 10,000 ft. high, and 58 of these exceed 14,000 ft. The loftiest point is Gray's Peak, 14,341 ft. The altitude of Denver is 5,294 ft., and the average elevation of the State is 7,067 ft.

Cerro Blanco, 14,269 ft., is the greatest altitude registered in New Mexico, and there are 34 other stations above 10,000 ft. Santâ Fé is 6,862 ft. above the sea. The average of the measurements, omitting the 35 peaks, is 6,175 ft.

The greatest elevations in Idaho are: Meade Peak, 10,541 ft.; Cache Peak, 10,451 ft.; and Sawtelle Peak, 10,013 ft. The average elevation is 5,700 ft.

There are in Utah 71 peaks, that exceed 10,000 feet in height, the loftiest being Emmons Peak, 13,624 ft., in the Uinta Mountains. The average elevation of the Territory is 6,020 ft.; that of the Salt Lake Signal Station is 4,346 ft.

In Arizona, which counts 13 peaks above 10,000 ft., the highest is San Francisco Mountain, 12,794 ft. Tucson is at the moderate elevation of 2,404 ft. The lowest point is Yuma, 141 ft.; and the average of the measurements below 10,000 ft. is 5,350.

The average for Nevada is 5,400 ft., exclusive of 30 mountains above 10,000 ft.; Wheeler Peak, the highest, rising to 13,036. The elevation of Virginia City is 6,339 ft.

In the States on the Pacific the average level sinks. In Washington it is 1,800 ft., New Tacoma, 31 ft., being the lowest point. Rainier, the highest mountain, rises to 14,444 ft.

The timber line on the Cascade Range in Oregon is 7,000 ft., and of 10 mountains which rise above it the highest is Mount Pitt, 9,760 ft. The lowest level is 5 ft., at North Sands, and the average for the State, omitting the higher mountains, is 1,600 ft.

California numbers 41 mountains more than 10,000 ft. high, the three at the head of the list being Mount Whitney, 14,898, Fisherman Peak, 14,448, and Shasta, 14,350 ft. The Yosemite Valley is elevated 4,060 ft. and the cliffs and domes about it range from 7,000 to 9,000 ft. above the sea. Death Valley, in the southern part of the State, sinks from—6 ft. at Bennett's Wells to—225 ft. at King Springs.* A greater depression is at Salton, 263 ft. below the sea. Omitting the extremes of height and depth, the average of the elevations in the State is 3,030 ft.

The highest summits in the United States are in Alaska. Mr. Dall's measurements are: Mount St. Elias, 19,500; Mount Cook, 16,000; Mount Crillon, 15,900; and Mount Fairweather, 15,500 ft. He is the only authority for Mts. Cook and Crillon; but for Mt. Fairweather Mr. Gannett gives six other measurements: Malaspina, 14,589; Tebenkoff, 14,000; Vasilieff, 13,946; Russian Hydrographic Chart, 14,708; English Admiralty Chart, 14,708; and Tebenkoff, chart III., 13,864 ft. For Mt. St. Elias Mr. Gannett has six authorities: Malaspina, 17,854; Tebenkoff, 16,938; La Perouse, 12,661; English Hydrographic Chart, 14,970; Russian Hydrographic Chart, 17,854; and Dall, 19,500 ft. These do not quite

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*Capt. Wheeler says (*Tables of Geog. Positions, etc., Washington*, 1885, *p.* 145): "Death Valley, greatest depression measured. . . —110 ft."

agree with the figures given by Dall, in the Report of the Superintendent of the U. S. Coast and Geodetic Survey for 1875. The latest measurement is that made in the summer of 1891 by Mr. Israel C. Russell, of the expedition sent out by the National Geographic Society and the U. S. Geological Survey. Mr. Russell's report on the height and position of Mount St. Elias was laid before the National Geographic Society, December 11, 1891, and is printed in the Society's *Magazine*, Vol. III., pp. 205–261.

The mean elevation of St. Elias above sea-level is, according to this report, 18,099 ft.; and its position is settled, approximately, in longitude 140° 55′ 30″ West from Greenwich. To use Mr. Russell's words: "The mountain is thus one and one-half miles south of the boundary and within the territory of the United States. The position is so near the junction of the boundary separating southeastern Alaska from the Northwest Territory with the 141st meridian that it is practically a corner monument of our national domain."

Mr. A. Lindenkohl writes, in *Petermanns Mitteilungen, 38 Band, I.*, that Mr. Russell's measurement leaves the question still undecided whether Mt. St. Elias or the Peak of Orizaba (18,205 ft., according to Prof. Heilprin) is the highest mountain in North America; and the editor of the *Mitteilungen* adds, in a note, that he has seen no occasion to change his opinion, expressed in 1891, as to the uncertain character of Prof. Heilprin's results.

THE GEOGRAPHICAL SOCIETY OF CALIFORNIA.—This Society was incorporated on the 11th of December,

1891. Its officers are: President, David Starr Jordan, M.D., LL.D., PH.D. (President of the Leland Stanford, Junior, University); Vice-Presidents, Fred. W. D'Evelyn, M.B.C.M., Edin., Colonel John O'Byrne; Directors, George W. Davis, M.D., Wm. Ham Hall, C.E., George A. Moore, Henry F. Emeric, Peter MacEwen, Edgar D. Peixotto, Hon. W. H. Pratt, U. S. Surveyor-General; Treasurer, R. H. McDonald, Jr., Vice-President, of the Pacific Bank; Secretary, J. Studdy Leigh, F.R.G.S. The establishment of this second society in San Francisco must be taken as evidence of the growing interest in geography throughout the country, and it is gratifying to welcome a reinforcement to the workers in so wide a field.

A Relief Expedition.—The following circular letter has been received:

"PEARY RELIEF EXPEDITION.

"The Academy of Natural Sciences of Philadelphia, at a meeting held on the 26th of January last, upon the recommendation of the Council, unanimously voted in favor of the organization of an expedition for the relief of Engineer R. E. Peary and his associates, now in winter-quarters on the north-west coast of Greenland. The leadership of such expedition has been delegated to Professor Angelo Heilprin, the second in command of the expedition of 1891. The difficulties and hazards of the expedition which Lieut. Peary has undertaken—which, if successfully accomplished, will constitute one of the most noteworthy geographical events of the century—are such as to necessitate this relief. It is estimated that the cost of the expedition will be approximately $10,000, which it is the hope of the Academy to raise through voluntary contributions.

"A subscription in *any* amount will be thankfully received by the undersigned Committee: Gavin W. Hart, Secretary and Treasurer; Uselma C. Smith, Dr. Benjamin Sharp, Dr. Samuel G. Dixon, Angelo Heilprin, *Chairman.* Academy of Natural Sciences, Philadelphia, February, 1892."

Mr. Peary says, in the "Outline of a Project for reaching the northern terminus of Greenland, *via* the Inland Ice," laid before the Council of the American Geographical Society in the spring of 1891 *:

"Party of five or six to be landed by a whaler in June, or early in July, at, or near the mouth of Whale Sound." . . .

He then sketches the occupations of the party for the summer (of 1891) and the winter (of 1891–92), and proceeds:

"Early in the spring (of 1892) four or five of the party to start overland across the 'Inland Ice' to Humboldt Glacier, with all the sledges and dogs, leaving one man in charge of the house.

"If the travelling and the weather be favorable, the sledge party will go on from Humboldt Glacier to the head of Petermann Fjord (90 naut. miles). Here a depot will be established, and two or three of the party with their dogs and sledges and a full supply of provisions will proceed; the remaining man or men, with the empty sledges and extra dogs, returning to Whale Sound, where they, with the one left in charge of the house, will utilize their time in hunting for the winter's supply of meat, collecting specimens, making meteorological observations and surveying.

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* The dates in parentheses are not in the original.

The sledge party will proceed from the head of Petermann Fjord to the head of Sherard Osborne Fjord (120 naut. miles), establish a depot there, then to the head of Meigs Fjord (110 naut. miles), establish a depot there, thence to the northern terminus of Greenland (100 to 200 (?) miles). This point reached and determined, the party would return, taking up the various depots.

The following winter (1892-93) to be spent in putting the results of the work in shape, and in the early summer (of 1893) the party to come down to C. York, go aboard one of the whalers, and return home."

Mr. Peary and his party left New York June 6, 1891, in the steamer *Kite*, and landed, late in July, on the south side of McCormick Bay, the entrance to Whale Sound being obstructed by ice.

The *Kite* left the party on July 30th, and arrived at St. John's, Newfoundland, August 23, 1891. In the letters which she brought to the American Geographical Society nothing is said of a change of plan; and it has been impossible to communicate with Mr. Peary since those letters were received.

The original plan, therefore, of a two years' sojourn in Greenland is the one now in process of execution; and in the absence of the special information, which the Academy of Natural Sciences must be supposed to possess, this Society has only to declare its perfect confidence in Mr. Peary's ability to accomplish his task and to effect his return in the summer of 1893.

DR. NANSEN'S PROPOSED EXPEDITION.—The expedition under Nordenskiöld, which was to have been sent to the Antarctic Continent at the joint expense of the Australian Colonies and Baron Oscar Dickson, has fallen through, the Colonies having failed to subscribe the necessary funds. This failure is due, as Dr. Nansen kindly suggests, to bad management on the part of those who took the enterprise in hand. He is now in England, engaged in raising money for his expedition to the North Pole, his original plan of an exclusively Norwegian enterprise having failed, for reasons as yet unexplained. He now proposes to leave Europe in January, 1893, for the mouth of the Lena river, probably by way of Bering Strait. He is satisfied that a current sets from the Siberian coast directly across the Pole to the north coast of Greenland. His specially constructed vessel of 250 tons is nearly completed, with accommodations for 12 men. Provisions for six years will be taken, and these will be supplemented by fresh meat, as it can be obtained. The engine will be used for the production of the electric light, and, when the steamer is laid up, the men will take the place of the engine. Tents and boats will, of course, be taken, and a balloon, the gas for which will be put on board in storage cylinders. The expedition will remain in the Arctic for three or four years.

A CORRECTION.—A story, describing the conduct of the American Babylonian Exploration party, was published in *Biblia* for August, 1891. No subsequent number of the magazine contradicted the story, and it was treated in the BULLETIN for December as a statement of facts.

What was there said must now be recalled, in view of the following letter and the admission made in *Biblia* for March, 1892 (p. 342), that the charges were without foundation:

NEW YORK, MARCH 9TH, 1892.

To the Editor of the Bulletin of the American Geographical Society:

SIR: In the December number of the BULLETIN, pp. 639 ff., copying from *Biblia*, you have published some startling and defamatory information regarding the American Expedition to Babylonia, of which I was director, as also certain sarcastic observations on our moral conduct. The reflections on our moral conduct would be unobjectionable, if the facts were as reported; but the whole story is a canard. It first appeared in a couple of the New York morning papers, not remarkable for common honesty, much less for scientific information. The raw material for the fabrication was a letter from an oriental in Beirout, who simply retailed the ridiculous gossip of that place. The manufacturer of the completed article was a common impecunious reporter who decorated the story, after the fashion of reporters, with such ornaments as his ignorance of geography, archæology and truth suggested, in the hope of making an acceptable and profitable article.

By what accident this canard crept into the columns of *Biblia* it is unnecessary to explain, for that journal has already corrected its error.

Briefly stated the facts are these: We did not land at Beirout. No tablets were seized at Smyrna, and we did not recover some of our money by selling arms to the natives. Our relations to the Turkish government were throughout friendly, and the Turkish officials treated us with courtesy and even generosity.

Very respectfully yours,
JOHN P. PETERS.

SLAVERY IN EUROPE.—Dr. R. A. Philippi prints in the *Verhandlungen des Deutschen Wissenschaftlichen Vereins*, Santiago (Chile), the results of his reading for a number of years on the subject of Slavery and the Slave Trade in the European States, during the Middle Ages and down to the XVIII century.

He has not been able to find any work on this subject in German literature.

The principal results arrived at are:

1. That slavery and the slave-trade ceased in the different countries at very different dates.
2. That the cessation was in no case due to a prohibition on the part of the Government.
3. That the Church had a substantial part in the abolition, because it zealously opposed the holding of Christians in slavery.
4. That the credit due to the Church for its opposition is not diminished by the fact that the heathen and the Mohammedans were reduced to slavery, and that public opinion sanctioned the practice.
5. That slavery endured in southern Europe to the end of the XVII century, and perhaps even into the first years of the XVIII.

Under Charlemagne, slaves, mostly Bretons, were sold in the markets, but the following extract (which Dr. Philippi cannot refer to its source) proves that a decree must have been promulgated against the trade: "Charlemagne had already shown himself hostile to the Venetians in the year 785, when at his command their merchants were expelled by Pope Adrian from the Exarchate (of Ravenna) and the Pentapolis * because they carried on the forbidden commerce in slaves." On the other hand, Schroeder says (*Gesch. Karls des Grossen,* S. 198): "In Italy the trade in human beings was carried on also beyond sea, and the unfortunates were mutilated, in order to make them more attractive wares in the Oriental market."

Rome was the centre of the Italian slave trade and here the Venetians bought the Christians, whom they sold to the Mohammedans, while the Spaniards brought to the same place, and disposed of, the Mohammedan slaves that they had taken in war or in piratical expeditions.

The most important slave mart in France was Lyons, which was supplied with multitudes of captives of Slavic origin, as well as with the Moors brought from Spain.

Bristol and London were noted for this commerce under the later Saxon Kings; but real slavery and the slave trade gradually disappeared from England in the early centuries of the Norman period, except in Bristol, which, with Verdun, Lyons and Venice, continued the traffic down to the XV century.

Dr. Philippi is not able to give the names of the German slave-trading places, but he is inclined to believe that Magdeburg was the head of them. At Whitsuntide in 1285, at Magdeburg, the winner in a shooting contest was rewarded with the prize of a girl; and another instance occurred in 1387, when a townsman of Aschersleben won the girl.

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* The five cities on the Adriatic—Rimini, Pesaro, Fano, Sinigaglia and Ancona.

Actual slavery began to cease in Germany in the XVI century,* and the great slave markets on the North Sea and the Baltic were closed.

This cessation was due, in Dr. Philippi's opinion, to the influence of the Church, which forbade Christians to sell their fellow Christians, just as the Mohammedan religion forbids its followers to enslave Mussulmans, at least those of the same sect. When the Slavs, the eastern neighbors of the Germans, were converted to Christianity, the authority of the Church protected them, while in southern Europe, down to the end of the XVII century, no one thought of questioning the right to hold Mohammedans in bondage.

Under Igor, the son of Rurik (A.D. 912-945), Russian traders carried on a brisk slave trade with Constantinople. The dealers were Normans, but there is doubt as to the nationality of the slaves. They were probably Irish, for the Normans sold men and women of that race in the German ports, and especially in Hamburg and Lübeck.

Dr. Philippi finds but two extracts for the XI, XII, XIII and XIV centuries. One states that after the defeat of the Moors at Narbonne, in 1018, the captives were sold by auction at Carcassonne. The other is a passage in the Sixth Tale of the Decameron (the action being in the year 1282), where it is said that Genoese corsairs divided among themselves the people they had taken at sea.

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*The text reads. "Schon seit dem 19 Jahrhundert," u. s. w., an evident misprint for 16.

Negro slaves were first imported into Spain and Portugal after the expulsion of the Arabs, and when the Portuguese had fairly begun their career of discovery.

The historian Damião de Goes computes the yearly importation into Lisbon at from 10,000 to 12,000 negroes (not including Moors). It was in 1434 that a man named Gonzales first offered Africans for sale in Portugal.

The famous Children's Pilgrimage to St. Michel in Normandy occurred in 1462, and the Bavarian Chronicle records that the children suddenly appeared in Bavaria, through which they had to pass, that many of them died of hunger, many perished with cold, and some were caught in France and sold.

In the year 1535 Nicolas Cleynaert, a Flemish scholar, who was a professor at Salamanca and afterwards the tutor of a Portuguese prince, wrote to his former teacher, Jacobus Latomus,* of Louvain, concerning the state of Portugal:

"Even if I were to offer the fourth part of my income, I could not induce any woman to come and look after my housekeeping. You will ask, of course, how it is I manage to get along. The place is full of slaves. Negroes and captive Moors do all the work, and Portugal is so overstocked with this kind of people that I really believe there are more slaves and slave women in Lisbon than there are free persons. There is hardly a house to be found without at least one female slave to do the rough work, and the rich have many slaves, men and women; and I fear that they give a loose rein to their lower impulses, since it is obviously to their advantage to sell the young slaves."

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*Peregrinationum ac de rebus machometicis epistolae elegantissimae. Lovanii, 1550.

When Tunis was captured (in 1535) by Charles V., great numbers of the inhabitants were reduced to slavery.

Giacomo Perollo never showed himself in the streets of Sciacca without his six gigantic slaves, who marched before him.

Azara, in his *Paraguay*, tells of a bachelor of S. Vincente, in Brazil, who sent 800 slaves to Europe; but it is not said whether these were negroes or native Brazilians.

In the XVII century the French Government still purchased slaves to man the galleys, when the number of convicts was insufficient for the purpose.

When the French settlements on the Barbary coast (Bona, La Calle, Bastion de France, etc.) were recovered, there was a M. Piquet at the head of them, and he gave occasion for so many complaints in his dealings with the people that the Dey of Algiers had to interfere by sending against him an officer with fifty soldiers. Monsieur Piquet enticed them on board ship, overpowered them, and carried them off to Leghorn, where he sold them in the open market. The French Consul sent them home, but the incident shows the existence of a slave-market in Leghorn, in 1640. Monsieur Piquet took the name of Monsieur de la Calle. He returned to France, rich, and no one called him to account.

Nor was it the French Government alone that held slaves. Private persons did the same. When the

French botanist, Tournefort, was travelling in Crete, he fell in with a Turk, who had been the slave of a merchant in Marseilles. The French Levant fleet occasionally kidnapped Mohammedans, just as the Phœnicians stole people in antiquity, and Tournefort says in the *Voyage du Levant, I., p. 67:* "The Turks hardly ventured to show themselves on the island before the departure of the French traders, for, when these landed, they caught the Turks by the beard, and carried them off into slavery."

The Neapolitan Government also held slaves. Overbeck says in his *Pompeji* (3 Aufl., p. 32): "In the year 1764 convicts and Tunisian slaves were employed in the excavations at Pompeii."

It was undoubtedly because of the continual wars with the Barbary States that slavery and the slave-trade lasted so long in the Christian countries on the Mediterranean. The Christians, like the Moors, made piratical voyages, and the slave-marts of Algiers and Tunis had their Christian counterparts; and the Christian governments sold the prisoners taken in war. In 1607, when France was at war with the Moors of Barbary, the city of Algiers was attacked and destroyed by six Florentine and five French galleys, and 1,800 of the inhabitants were carried off and sold into slavery. Christians and Mohammedans alike treated their slaves with inhumanity.

It caused no scandal among Christian men to enslave Mohammedans. When the Great Elector (who reigned 1640–1688) established his factories on the Guinea coast, he instructed his admiral to look out for Turkish vessels, and to sell their crews in Lisbon.

ALPINE CLUB AT ODESSA.—A Crimean Alpine Club has just been founded at Odessa. Its objects are: to explore the mountains of the Crimea; to publish scientific researches; to promote and to encourage excursions of travellers, artists and naturalists; to aid the development of agriculture and horticulture, and the local industries of the mountaineers; and to protect the rare species of animals and mountain plants. The Secretary of the Club is Mr. Fr. Kamienski, Professor of Botany in the University of Odessa.

A COMMERCIAL EXPLORATION IN INDO-CHINA.—Mr. Paul Macey, in a communication, printed in the *Bulletin de la Société de Géographie de Paris, No. 1, 1892,* describes the results of his two years' exploration, endlong and overthwart, in the Indo-Chinese peninsula. He travelled in all about 12,100 kilometres, or nearly 7,500 miles. His commercial objects, such as the establishment of depots and counting-houses and the introduction of French goods, seem to have been attained; and his experience satisfied him that the circuit of French Indo-China, from Saïgon along the coast of Anam to Tonkin, and thence by the Black River, the Nam-Hou and the Mekong back to Saïgon, could be made in 76 days, 71 of them on navigable waters. The travel by land had the charm of variety, in the continued changes from walking to riding on horseback or in ox-carts.

The great rapids of the Mekong do not seem to have delayed Mr. Macey. He says: "We reached the island of Kong (at the rapids) on the 17th of August. The passage below the rapids was accomplished without any difficulty, by carrying the goods across the island, through rice-fields, for a distance of 1,800 metres (1 2-15 miles) in a straight line. Considering the nature of the soil and the character of the currents in the tangle of islets in mid-stream at this point, I studied the plan of a canal to allow of the passage of boats during the greater part of the year, without trans-shipment of cargoes. The line of this canal would lead directly across the rice-fields from the point where the boats now discharge cargoes to that at which they are reloaded; and the construction of the work would cost no great sum."

The Scientific Commission, appointed to study the question of facilitating the navigation of the Mekong, seems, according to the *Annales de Géographie* of January 15, to have arrived at the conclusion that the Kong rapids present an insurmountable barrier to the passage of steamers up-stream; and the proposition is now made to take the steamers to pieces below the rapids, transport them across the island, and put them together again on the other side.

This conclusion is opposed to the account given, at a meeting of the Paris Geographical Society, on the 5th of December, by Mr. Em. Pelletier, who declared that he, in company with Mr. Mougeot, had made a special study of the question on the river itself, and had discovered a channel, practicable for steamboats.

In February, 1891, Mr. Macey set out from Ban-La-Hane with the first Franco-Chinese caravan to travel on the routes of the Muong-Lu and the great roads towards Yunnan. He found that, among the roads which lead down from Yunnan towards the centre of

Muong-Lu and Luang-Prabang, or towards Laï-Chau, several are 1.80 metre (very nearly 6 ft.) in width, paved with stone, even in the mountains, and provided with cemented stone drinking-troughs for pack-animals. There are, also, considerable remains, often of several hundreds of metres in length, of stone bridge, both straight and diagonal, with vaulted arches, resting on stone foundations and supported by piers constructed of stones regularly fitted and cemented. These bridges, which are hundreds of years old, are the work of the Chinese. On many of the hill-tops stand monuments of chiselled stone, adorned with sculptures, and the numerous carved tombstones prove by their dates that, two hundred years ago, there were populous Chinese settlements in these districts.

On his way to Vinh, on the Gulf of Tonquin, Mr. Macey waited some days for an escort at a place called Nong-Ma, and employed the time in instructing the people in the art of extracting and preparing india-rubber. Although the trees and vines, which yield the rubber, abound in the valleys, the people of the country knew nothing of its value, and Mr. Macey believes that he has organized a new industry in the colony.

THE PAMIRS.—Capt. F. E. Younghusband lately read before the Royal Geographical Society a paper on his "Journeys in the Pamirs and Adjacent Countries," performed in the years 1889 and 1890. The paper is reported in part in *Nature*, of February 11:

"The country," he said, "which I now wish to describe to you is that mountainous region lying to the north of Kashmir, which, from the height, the vastness, and the grandeur of the mountains, seems to form the culminating point of western Asia. When that great compression in nature took place this seems to have been the point at which the great solid crust of the earth was crunched and crushed together to the greatest extent, and what must have formerly been level, peaceful plains such as we see to the present day on either hand, in India and in Turkistan, were pressed and upheaved into these mighty mountains, the highest peaks of which are only a few hundred feet lower than Mount Everest, the loftiest point on this earth. It was amongst the peaks and passes, the glaciers and torrents of this awe-inspiring region, and anon over the plain-like valleys and by the still, quiet lakes of the Pamirs that my fate led me in the journeys which I have now come before you to describe."

Starting from Leh, in Lahak, Captain Younghusband's first objective point was Shahidula. This place is situated on the trade route to Yarkand, and is 240 miles distant from Leh. This he left on Sept. 3, to explore the country up to the Tagh-dum-bash Pamir.

The route now led up the valley of a river, on which were several patches of fine grazing land. The year before this place had been inhabited; it was now deserted on account of Kanjuti raids. The valley is known by the name of Khál Chuskún. Chuskún in Turki means resting-place, and Khál is the name of a holy man from Bokhara, who is said to have rested here many years ago. The mountains bounding the north of this valley are very bold and rugged, with fine upstanding peaks and glaciers; but the range to the south, which Hayward calls the Aktágh Range, was somewhat tame in character, with round mild summits and no glaciers. The Sokhbulák is an easy pass, and from its summit to the east could be seen the snowy range of the western Kuenlun Mountains, while to the west appeared a rocky mass, culminating in three fine snowy peaks, belonging to the Aghil Range, which is separated from the Mustagh Mountains by the valley of the Oprang River.

On Sept. 11, the party crossed the remarkable depression known as the Aghil Pass.

" From here is obtained one of the grandest views it is possible to conceive ; to the southwest you look up the valley of the Oprang River, which is bounded on either side by ranges of magnificent snowy mountains, rising abruptly from either bank, and far away in the distance could be seen the end of an immense glacier flowing down from the main range of the Mustagh Mountains. This scene was even more wild and bold than I had remembered it on my former journey, the mountains rising up tier upon tier in a succession of sharp, needle-like peaks, bewildering the eye by their number, and then in the background lie the great ice mountains—white, cold and relentless, defying the hardiest traveller to enter their frozen clutches. I determined, however, to venture amongst them to examine the glaciers from which the Oprang River took its rise, and, leaving my escort at the foot of the Aghil Pass, set out on an exploration in that direction. The first march was easy enough, leading over the broad pebbly bed of the Oprang River. Up one of the gorges to the south we caught a magnificent view of the great peak K 2, 28,278 ft. high, and we halted for the night at a spot from which a view of both K 2 and of the Gushirbrum peaks, four of which are over 26,000 ft., was visible. On the following day our difficulties really began. The first was the great glacier which we had seen from the Aghil Pass; it protruded right across the valley of the Oprang River, nearly touching the cliffs on the right bank; but fortunately the river had kept a way for itself by continually washing away the end of the glacier, which terminated in a great wall of ice 150 to 200 ft. high. This glacier runs down from the Gushirbrum in the distance towering up to a height of over 26,000 ft. The passage round the end of the glacier was not unattended with danger, for the stream was swift and strong, and on my own pony I had to reconnoitre very carefully for points where it was shallow enough to cross, while there was also some fear of fragments from the great ice wall falling down on the top of us when we were passing along close under it. After getting round this obstacle we entered a gravel plain, some three-quarters of a mile broad, and were then encountered by another glacier running across the valley of the Oprang River. This appeared to me to be one of the principal sources of the river, and I determined to ascend it. Another glacier could be seen to the south, and yet a third coming in a south-east direction, and rising apparently not very far from the Kárákorum Pass. We were, therefore, now in an ice-bound region, with glaciers in front of us, glaciers behind us, and glaciers all around us. Heavy snow clouds, too, were unfortunately collecting to increase our difficulties, and I felt that we should have a hard task before us. On first looking at one of these glaciers it would appear impossible to take ponies up them, but the sides are always covered with moraine, and my experience in the exploration of the Mustagh Pass in 1887 showed that, by carefully reconnoitring ahead, it was generally possible to take the ponies for a considerable distance at least up such glaciers ; and as the one we had now reached seemed no worse than others, and there appeared a gap in the range which looked as if it might be a pass, I took my ponies on, and after three days' scrambling on the ice, reached the foot of the supposed pass, and started at 3:30 on the following morning to find if it was at all practicable."

He was making towards a ravine, and was just rounding an icy slope, when there came a report like thunder, and then a rushing sound. It was an avalanche, coming from straight above the party. " I felt in that moment," says Capt. Younghusband, "greater fear than I ever yet have done, for we could see nothing, but only heard this tremendous rushing sound coming down upon us." Preceded by a cloud of snow dust, the avalanche swept past in the ravine. The ascent was continued for some distance, but ended abruptly at the edge of a great chasm, with perpendicular walls of solid ice, and the party turned back, having climbed to a height of 17,000 ft. It was snowing heavily when they reached the glacier, and the reports of avalanches were heard all around in the mountains, which were extremely rugged and precipitous, many of those in the western, or main, Mustagh Range being from 24,000 to 28,000 ft. in height. The glacier was vast:

"The length of this glacier is 18 miles, and its average breadth half a mile; it is fed by three smaller glaciers on the west and one on the east. At its upper part, immediately under the pass, it is a smooth undulating snow field about a mile and a half in width. Lower down this *névé* is split up into crevasses, which increase in size the further down we get. Then the surface gradually breaks up into a mass of ice domes, which lower down become sharp, needle-like pinnacles of pure white ice. On each side lateral gravel moraines appear, and other glaciers join, each with its centre of white ice peaks and its lateral moraines, and preserving each its own distinct course down the valley, until some three miles from its termination in the Oprang River, when the ice peaks are all melted down and the glacier presents the appearance of a billowy mass of moraine, and would look like a vast collection of gravel heaps, were it not that you see, here and there, a cave or a cliff of ice, showing that the gravel forms really only a very thin coating on the surface, and that beneath is all pure solid ice. This ice is of opaque white, and not so green and transparent as other glaciers I have seen, and the snow at the head of the glacier was different from any I have seen before ; for beneath the surface, or when it was formed into lumps, it was of the most lovely pale transparent blue. I must mention, too, that every flake of snow that fell in the storm was a perfect hexagonal star, most beautiful and delicate in form. The mountains on either side of the valley, especially on the eastern side, are extremely rugged and precipitous, forming little or no resting place for the snow, which drains off immediately into the glacier below."

From the junction of the Oprang and the Raskam rivers, the party started for the Tagh-dum-bash Pamir, crossing an easy pass, 14,600 ft. high. Here they were in broad, grass-grown valleys. This was the first sight of the Pamir. A bitter cold wind greeted the travellers as they descended from the pass, and it never ceased for an hour during the three weeks spent on the Tagh-dum-bash.

In the little Hunza, or Kanjut, State, Capt. Younghusband was well received by the Chief, Safder Ali Khan, who had a few years before murdered his father, poisoned his mother, and thrown his two brothers over precipices. These exploits the chief reported to his suzerain, the Maharajah of Kashmir, in the following words: " By the grace of God and the decree of fate my father and I fell out. I took the initiative and settled the matter, and have placed myself on the throne of my ancestors." Being asked whether he had visited India, Ali Khan replied that great kings, like Alexander and himself, never left their own dominions.

The people of Hunza live in walled villages.

In his second journey Capt Younghusband started from Yarkand, accompanied by Mr. Macartney.

Approached from this side, the Pamir mountains seem to rise suddenly out of the plain from a height of 4,000 ft. above sea-level to over 25,000 ft. at the loftiest summits. Mounting this wall, the traveller comes to the Bam-i-dunya, the Roof, or as Capt. Younghusband translates it, the Upper Story of the World.

The Pamirs are the broad, open valleys, separated by comparatively low ranges of mountains. In the Hindu Kush and Himalayan region the valleys, as a rule, are deep and narrow, and shut in; but on the Roof of the World they have been filled up faster than the rainfall has been able to wash them out, so that their bottoms are sometimes four or five miles broad, nearly level and of considerable height above the sea. The Tagh-dum-bash Pamir runs as low as 10,300 ft., but, on the other hand, at the upper extremity its height is over 15,000 ft.; and the other Pamirs vary from 12,000 or 13,000 to 14,000 ft.—an elevation level with the summits of the Alps.

The climate is very severe. Capt. Younghusband says: "I have only been there in the autumn . . . in three successive years, and have seen ice in the basin of my tent in August. I have seen the thermometer at zero (Fahr.) at the end of September, and 18° below at the end of October. The snow on the valley bottoms does not clear away before May is well advanced. June and July and the beginning of August are said to be pleasant, though with chilly nights; and then . . . autumn commences."

The travellers advanced up the long, gravel desert slopes which lead out of the plains of Turkistan, and then through the lower, outer ranges of hills covered with a thick deposit of mud and clay, which Capt. Younghusband believes to be the dust of the desert, which is ever present in the well-known haze of Turkistan; then over the Kara-dawan, Kizil-dawan, and Torat Passes; through the Tangitar defile, and over the Tagarma Plain, to the neighborhood of Tash-Kurgan.

They struck the Alichur Pamir at its eastern extremity, and from there they looked down a valley, averaging four or five miles in width, to some snowy peaks overhanging Lake Yeshil-kul at its western extremity. The range bounding this Pamir on the north is free of snow in summer, but that separating it from the Great Pamir is always covered with snow, and the passes are difficult. Traces of ancient glaciers are very frequent, and the western end near Lake Yeshil-kul is choked up with their moraines, forming a sea of gravel mounds, in the hollows of which numerous lesser lakes may be seen. On the borders of Yeshil-kul, at a place called Somatash, Captain Younghusband found the fragments of a stone bearing an ancient inscription in Turki, Chinese, and Manchu. This interesting relic, as far as Captain Younghusband has been able to get the rubbings he took of it translated, refers to the expulsion of the two Khojas from Kashgar by the Chinese in 1759, and relates how they were pursued to the Badakhshan frontier.

From the Ak-su Valley the two travellers ascended the sterile valley of the Ak-baital, which at this season of the year (October) has no water in it, and visited Lake Rangkul. "On the edge of this lake is a prominent outstanding rock, in which there is a cave with what appears to be a perpetual light burning in it. This rock is called by the natives Chiragh-tash, *i.e.*, the Lamp Rock, and they account for the light by saying that it comes from the eye of a dragon which lives in the cave. This interesting rock naturally excited my curiosity. From below I could see the light quite distinctly, and it seemed to come from some phosphorescent substance. I asked the Kirghiz if any one had ever entered the cave, and they replied that no one would dare to risk the anger of the dragon. My Afghan orderly, however, had as little belief in dragons as I had, and we set off to scale the cliff together, and by dint of taking off our boots and scrambling up the rocks, very much like cats, we managed to reach the mouth of the cave, and on gaining an entrance found that the light came neither from the eye of a dragon nor from any phosphorescent substance, but from the usual source of light—the sun. The cave, in fact, extended to the other side of the rock, thus forming a hole right through it. From below, however, you cannot see this, but only the roof of the cavern, which, being covered with a lime deposit, reflects a peculiar description of light. Whether the superstitious Kirghiz will believe this or not I cannot say, but I think the probability is that they will prefer to trust to the old traditions of their forefathers rather than the wild story of a hare-brained stranger. The water of the Rang-kul is salt, and the color is a beautiful clear blue. The mountains in the vicinity are low, rounded, and uninteresting, though from the eastern end a fine view of the great snowy Tagarma Peak may be obtained."

The winter was spent in Kashgar, and Capt. Younghusband returned to India in the summer.

EXPLORATION OF THE KARAKORAM GLACIERS.—A party, led by Mr. W. Martin Conway, has left England for Karachi, from which place it will proceed by way of Abbottabad and Kashmir to the frontier of Eastern Turkistan.

Mr. Conway proposes to make scientific collections and to study the glacial phenomena, and, especially to survey the great Baltoro glacier, which descends from the peak, known as " K 2 " (28,265 ft. high), the second highest mountain in the world.

The glacier-system of the Karakoram range is believed to be the largest in the world, outside of the Arctic and Antarctic regions, and part of it, including the Baltoro glacier, was surveyed in 1860–61 by Capt. Godwin-Austen, of the Great Trigonometrical Survey of India. Lieut. Younghusband saw this peak in 1886 from the Sarpo Laggo Valley, and described it to the Royal Geographical Society, in 1888, as follows:

" After ascending it (the valley) for a few miles, we came in full view of the great peak, K 2, the second highest mountain in the world, 28,250 ft. in height. We could see it through a break in the mountains rising up straight, bold and solitary, covered from foot to summit with perpetual snow. The upper part, for perhaps 5,000 ft., was a perfect cone, and seems to be composed almost entirely of ice and snow, the accumulation of ages. The lower part was more precipitous, but steep enough to throw off the snow altogether, while at the base was a great glacier, formed by the masses of snow, which fell from its sides."

Capt. (now Lieut.-Colonel) Godwin-Austen was present at the reading of Lieut. Younghusband's paper, and must have been gratified at Gen. Walker's proposition, seconded by Sir Henry Rawlinson, to bestow the name of Godwin-Austen upon the peak K 2. The name does not seem to have established itself in English usage, but it finds a place in Stieler's map of India.

It is said that Mr. Conway and his companions will make an attempt to ascend this mountain.

NORTHERN KOREA.—Mr. Charles W. Campbell, of

H. B. M's Consular Service, China, read before the Royal Geographical Society, in January, a paper on "A Journey Through North Korea to the Ch'ang-pai Shan." Mr. Campbell left Seul Aug. 31, 1889, and followed the northern highway to Wen-San, where he turned off to visit the Keum Kang San, or Diamond Mountains, in which is a notable collection of Buddhist monasteries. These mountains are a remarkable section of the main range on the east coast of Korea. In the north of the Kang-wen province the range, elsewhere tame, suddenly becomes a towering mass of irregular, precipitous rocks. They occupy a well-defined district 30 miles long by 20 miles broad. At the foot of the Diamond Mountains is the monastery of Ch'ang-An Sa, (Temple of Eternal Rest), said to have been restored, or rebuilt, at the beginning of the VI century; and the tradition, at the monastery, dated the oldest relics from the T'ang period, A.D. 618-907. At the present time there are scattered over the slopes of the mountains upwards of forty shrines, tended by 300 or 400 monks, a few nuns, and a host of lay servitors. There are four chief monasteries, in which most of the monks are gathered, and the nuns possess one or two sanctuaries, spending a part of their time in weaving cotton and hempen garments.

The monks travel over the country, with alms-bowl in hand, chanting from door to door, begging money for a new altar or the repair of an old one, as well as their food and lodging. Mr. Campbell could not say much in favor of these monks. They were ignorant, even of their religion and its history, and they were not held in respect by the people.

The scenery of the Diamond Mountains made a strong impression. Mr. Campbell's route followed a torrent up the west slope to the watershed, 4,200 ft. above the sea, and descended the eastern flank. The monastery of Ch'ang-An stood on a semi-circular space of level ground, a little way up the western slope. The hill in the background was green with trees and shrubs, and in front of the temple the water swirled through rough, tumbled granite blocks, with here and there a clear pool; and beyond rose a conical buttress of the mountain, clothed for half its height with pines and tangled undergrowth. Above, the bare cliff was split vertically by seams and cracks, which produced the effect of immense organ pipes. The topmost ribs were almost perpendicular, and gleamed bare and blue in the evening sun.

After crossing the mountains, Mr. Campbell followed the coast northward for six days, passing through a number of populous towns. Turning inland at Pak-ch'eng he reached the crest of the range that fringes the highlands of North Korea, and made his way back to Seul through Kap-San, Po-Ch'en and the Tei-mun Ryeng (Great Gate Range, or Pass), which divides the Yalu-Kiang from the Sungari basin.

THE JAPANESE EARTHQUAKE OF OCTOBER 28, 1891.—The official estimate of the losses by this great earthquake is about ten million dollars. The prefectures of Gifu and Aichi have not ceased to be shaken; and the report of the destruction caused in Gifu is: Lives lost, 4,957; houses entirely ruined, 51,006; houses burned, 4,431; houses partially ruined, 33,456; houses partially burned, 23.

Investigations made by the Central Meteorological Observatory in Tokyo show that the cause of the earthquake was the subsidence of an area of about two-and-a-half miles in diameter in the north west of the province of Mino, on the shore of Lake Biwa. The earth-wave created extended to the surrounding provinces. The celebrated mountain, Fusiyama, has suffered. The south-western slope of the summit has disappeared, through the sinking of an area, 4,000 feet long, 2,000 feet wide and 1,000 feet in depth.

THE EGYPTIAN SUDAN.—The London *Times*, of Feb. 2, reports at length the information concerning the Sudan furnished by Father Ohrwalder, the Austrian missionary, who, with two nuns, succeeded recently in making his escape from the Mahdists.

It is believed that three-fifths of the entire population have been destroyed, and disease still carries off large numbers, though supplies are plentiful and the wells are full of water.

There had been fighting with the Shilluks in Fashoda, and they had been driven to their strongholds; but they are not subdued and Zaki, who commands against them, dares not go far from the Nile. Zaki's force is strong enough to check any movement of Emin Pasha to the northward from Wadelai, which he is said to have entered. Bahr el Ghazal is entirely deserted by the Dervishes.

Dar-Fur is practically abandoned, for Ahmed Mahmud, the Khalifa's cousin, who was in command at El Fasher, has thought it prudent to retreat to El Obeid, and this place forms, therefore, the extreme western limit of the Khalifa's authority.

Dongola is held by a force of 3,000 men, with six mountain-guns, one machine gun, and a fair supply of ammunition.

In the Eastern Sudan the Dervishes still hold their ground, though the battle fought at Tokar in February, 1891, has stopped the advance of the Khalifa's power. Father Ohrwalder thinks that, for the present, the defensive attitude will be maintained.

At Kassala there was a state of revolt among the neighboring Arabs. Abu Girgeh was in command in the town, with a force of 1,100 men, and a reinforcement of 3,000 men was to be despatched from Omdurman, to strengthen Kassala against the Italians. There is little trade at Kassala, the commerce between the Sudan and Massaua passing through Gedaref.

The prisoners in and around Omdurman number about 75 Europeans—men, women and children—500 Copts and about 1,500 Mohammedan Egyptians. Among the Europeans are Slatin and Neufeld, and Victoria, the daughter of Georghi Bey. Ernest Marno's son is still alive, and the two children of Joseph Klein live in great poverty with their mother. Giuseppe Cuzzi, now very old, draws $7 a month; and Pietro Moratori, a Pisan, who has spent forty-two years in the Sudan, works as a mason and builder. There are, also, 22 Greeks (3 of them women), 10 Syrians (2 women), 8 Jews and 3 Jewesses, and, in all, 20 children of various nationalities.

Down in Egypt.—Luzac & Co.'s Oriental List, Vol. II., No. 10, records a new Oriental book, published in America, with this title:

"From Timber to Town, Down in Egypt.—A Dialect Story by an Early Settler, 16 mo., Chicago, 1891."

The scene of this dialect story is laid, not on the banks of the Nile, but in the State of Illinois. The lower part of that State is familiarly known as Egypt, and Webster's Dictionary (ed. 1877), p. 1558, explains the name, as follows:

"EGYPT." A cant, popular designation of the southern portion of the State of Illinois—being a figurative allusion to the thick darkness in which ancient Egypt was involved for three days in the time of Moses.

The inhabitants of Southern Illinois have had the general reputation of being extremely ignorant."

It is not Webster himself, but Mr. William A. Wheeler, who is responsible for this explanation.

FRENCH GUINEA.—The French Government has established a protectorate over the Gold and the Ivory Coasts of Guinea, from Assini, on the east, to the river Cavally, on the west, and extending inland to the states of the Samory and of Tieba. Dr. Ballay has been appointed governor of this new colony, which is to be known as "French Guinea."

ZIMBABWE.—Mr. J. Theodore Bent has made public the result of his explorations at Zimbabwe and at other points in Mashonaland. At Zimbabwe, which lies in S. Lat. 20° 16′ 30″ and E. Long. 31° 10′ 10″, at an elevation of 3,300 ft. above the sea, the work was carried on through the months of June, July and part of August, 1891, beginning with the large phallic temple at the foot of the hill. The character of the temple was shown by the symbol marked in stone on the solid round tower, the encircling wall, the *discus*, and by the decorated objects found in the excavations.

This circular building was for centuries the Zimbabwe, or royal kraal, of the Kaffir emperors, called by the dynastic term of Monomatapa. Each separate chief of the race had his own Zimbabwe. Even now the natives speak of the lower building as "Zimbabwe," and of the fortress on the adjacent hill as "the walls," or "the ruins."

The work on the fortress laid bare the narrow approach from the plain through two tortuous walls, protected by traverses, ambuscades, and every conceivable form of defence; this led up to a narrow gulley between the sides of a split granite boulder, up which a set of steps led to a parapet above the precipice of granite. On this summit, a very elaborate system of fortification had been erected; a wall 13 ft. thick and 30 ft. high runs along the edge of a sheer precipice 90 ft. in height. The wall is surmounted by monoliths alternating with small round towers, and is again protected by an inner wall, allowing of only a narrow passage. In this place were found a fine barbed copper spearhead and "several implements of war"; so Mr. Bent calls them. The upper part of this fortress was adorned with huge monoliths and decorated beams of soapstone, one 13 ft. in height. The patterns were of a geometric character.

The temple of the fortress, now used as a cattle kraal, looked, like the temple at the base, to the south-east. It was supported by a system of under walls, and was approached by a narrow passage and a staircase, the steps of which were formed by a continuation of the rounded courses of the outer wall. The semi-circular outer wall had been decorated by carved birds on the top of soapstone pedestals, five or six ft. high. Five were found, all different; one bore on its pedestal and wings the characteristic symbol, and one only had its beak uninjured, the beak of a vulture or raven. Iron bells of a "curious form" (Mr. Bent is not given to precision) were found near these birds.

In the middle of the building was an altar, built of small granite blocks, which fell apart when disturbed, and here, also, were more realistic objects in soapstone. Adjoining the temple were two caves, which yielded fragments of soapstone bowls and pottery, a gilt spear-head, more "implements of war," and pieces of Persian and celadon china. The bowls were decorated—one piece showing a man with an arrow, pursuing zebras, and dragging behind him in a leash a dog, which turns toward two hippopotami. The pottery was well-glazed and decorated with geometric patterns.

Close underneath the temple was a gold-smelting furnace made of very hard cement. Around it were crucibles, also of cement, in which were still fixed many dots of gold, about the size of a pin's head. In a chasm hard by was a heap of the quartz. Tools for removing the gold from the furnaces, burnishers, crushers, etc., were also found.

Mr. Bent says that the whole country from the Lundi to the Zambezi is studded with ruins, similar to those of Zimbabwe. One of these, called Mattindaila by the natives, lies 64 miles north-east of Zimbabwe. The ruins stand on a gentle, granite eminence; and they were, apparently, the centre of a line of forts extending for many miles. The area enclosed is almost as large as the circular building of Zimbabwe; but there was no sign of a round tower, and the walls were much injured. One pattern runs for a space outside the wall, then for a corresponding space on the inside, and then again on the outside. This pattern is similar to one on a fort by the Lundi, while another is identical with a Zimbabwe pattern. Over the chief entrance the pattern ran as a sort of lintel and above it was a set of loopholes, one still perfect. The patterns and the most substantial part of the building faced the south-east. The interior was divided by cross walls, and was full of gigantic baobab trees. The entrances were curious, being all triple and squared at the corners, not rounded, like those at Zimbabwe; and all the entrances were walled up.

There were smaller buildings near by and numerous circular foundations of regularly-built granite blocks, of from 6 to 15 feet in diameter.

Another equally good fort was visited in the Mayzoe gold fields; and others were found still further to the eastward. Beyond these, at Massikesse, are buildings of Portuguese construction.

In an address before the Royal Geographical Society, on the 22d of February, Mr. Bent declared his conviction that the ruins in Mashonaland were not in any way connected with any known African race, and that the objects of art and the special cult were altogether foreign to the country. It was clear to him that the ruins had formed a garrison for the protection of a gold-producing race in remote antiquity. This race he found in Arabia, and he concluded that Africa furnished the gold, so often spoken of as "Arabian" by ancient writers. Furthermore, a cult practised in Arabia in ancient times was also practised at Zimbabwe; and hence there is little room for doubt that the builders and workers of the great Zimbabwe came from the Arabian peninsula.

There is no improbability in this conclusion, though it is reached *per saltum*, rather than by a logical process. Allusions to Arabian treasures and to India, in the writers of antiquity, are not always to be taken in a definite geographical sense; and there is no force in the argument from the cult, for this had its home in every region of the earth.

THE ELDER WEST AUSTRALIAN EXPEDITION.—Mr. Henry Greffrath* contributes to *Petermanns Mitteilungen, 38 Band, I*, the substance of despatches sent from Esperance Bay by Mr. Lindsay, the leader of the West Australian Expedition, to the Geographical Societies of Adelaide and Melbourne.

Mr. Lindsay says: West of the Everard Range, S. Lat. 27° 9′, E. Long. 132° 28′, it rained so hard for a stretch of 80 kilometres (50 miles) that the camels had great difficulty in struggling through the heavy ground. Fort Mueller, in S. Lat. 26° 10′, E. Long. 128° 0′, was completely dry and showed no sign of the intermittent spring, for which Giles took it, in his journey in 1876. The highest temperature observed in the shade was

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*This gentleman begins his communication with the gracious words: "The expedition, equipped in Adelaide by the wholesale merchant and squatter, Sir Thomas Elder, etc." (Die von dem Grosskaufmann und Squatter, Sir Thomas Elder in Adelaide ausgerüstete . . . Expedition, u. s. w.).

Mr. Greffrath's implied preference for the retail trade is a matter of taste.

35½° Centigrade (96° Fahr.). The region west of the South Australian boundary consists of sand hills covered with acacia-bush (mulga) and grass, sandy plains with abundant spinifex and hills of granite and diorite, rising singly or in groups, and, farther south, of sandstone hills and a belt of desert gum trees. Nowhere a lasting supply of water. The still numerous natives seemed to be friendly, but they were shy and kept at a distance.

From Barrow Range, S. Lat. 26° 0′, E. Long. 127° 7′, where one of the camels died, to Ninety-Gallon Rock Hole, S. Lat. 27° 40′, E. Long. 126° 0′, there were continuous, regular sand hills, covered with spinifex, and with hardly any other vegetation. There was almost no water in the rock hollows, and, according to appearances, there had been no rain for two years. Here the natives were hostile and there was a collision with them, but, happily, without resort to firearms. Parties sent out from the camp brought back always the same report of sand and sandstone hills, spinifex and no water.

From the Ninety-Gallon Rock Hole a march to the south-west, over a country in which the sand hills were less frequent, lower and more irregular, led to Queen Victoria Springs, discovered by Giles in 1875, in S. Lat. 30° 23′, E. Long. 123° 17′. According to Mr. Lindsay, these springs, reached on September 23, by no means deserve their stately name. Part of the journey in this direction lay for miles through a forest of eucalyptus trees, with undergrowth of scrub and spinifex. Neither grass, nor birds, nor animals were seen. The camels suffered over a stretch of burnt country before they came to Queen Victoria Springs. There was no trace of Giles's earlier line of route. The savages hardly showed themselves, but Mr. Lindsay reports that they practise tattooing and circumcision, and that their weapons are spears, boomerangs and waddies, or war clubs. A second camel died. A plant, said by Giles to be poisonous, was found to be innocent. No minerals were observed, but a collection of 10,000 species of plants was made and forwarded from Esperance Bay to Baron von Mueller, at Melbourne.

Of the forty-two camels, two died and a third had to be abandoned; the rest reached the coast in a pitiable condition. Three new camels were bought at Esperance Bay. The members of the expedition were fairly well, though one, C. A. Bowden, had died of inflammation of the lungs on the 8th of May. Two of the party, not well suited to the work, were sent home, and an experienced camel driver was brought from Adelaide, and a fresh start was made to the north and north-west to the source of the Murchison River, which enters the sea in S. Lat. 27° 35′, E. Long. 114° 4′. Unfortunately, it was learned that an extraordinary drought prevailed in that direction, and this foredoomed the attempt to failure.

A short cable despatch mentioned in December that it was found impossible to push on to the north. The expedition had turned back into the settled parts of West Australia to the town of York, in S. Lat. 31° 53′ 15″, E. Long. 116° 47′ 15″, and, according to a later telegram, a new start was to be made from that place.